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Citation for published version:

De Silva, S & Srinivasan, K 2019, 'Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka', *Geoforum*, vol. 102, pp. 182-190. <https://doi.org/10.1016/j.geoforum.2019.04.004>

Digital Object Identifier (DOI):

[10.1016/j.geoforum.2019.04.004](https://doi.org/10.1016/j.geoforum.2019.04.004)

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Peer reviewed version

Published In:

Geoforum

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Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka

Sunila de Silva & Krithika Srinivasan¹

Abstract

This paper examines human-wildlife conflict in and around protected areas to reflect on long-standing questions in conservation social science about protected areas and fortress thinking. It develops a more-than-human political ecology of human-elephant cohabitation and conflict in Sri Lanka to explore how changing socio-material conditions intersect to produce conservation and human-wildlife conflict in today's world. The paper's overarching argument is that fortress conservation is better understood as a relatively proximate cause of human-wildlife conflict and the other social impacts associated with the domain of conservation. Through its analyses, the paper deepens the critique of nature-society dualisms that is embedded in the appellation of 'fortress conservation' and offers insights that strengthen the reach and force of scholarship that tackles the persistent "appeal" of the "fortress" (Buscher 2016, 115).

Main Paper

1. Introduction

Wildlife conservation is a long-standing topic in political ecology and allied social sciences. The conservation-induced displacement of people and linked issues such as human-wildlife conflict have been a key focus of such scholarship. This work has drawn on conceptions of social natures to critically theorize conservation measures such as protected areas with the appellation 'fortress conservation' (Brockington 2002). There is now a substantial body of literatures that offer much needed critiques of the manifold social impacts and diverse manifestations of problematic conservation practice, and its interlinkages with neoliberal development. Nonetheless, as Buscher (2016, 115) points out, "the idea and practice of the fortress seems to have lost little of its appeal."

In this paper, we examine human-elephant conflict in and around a protected area in Sri Lanka to provide fresh perspectives on this impasse in conservation research and practice. We develop a more-than-human political ecology of human-elephant interactions to track the causes, conditions, impact of, and responses to conflict, and deepen the deployment of ideas of social natures to argue that conservation practice (including protected areas) is better understood as a proximate cause of human-wildlife conflict and the other social impacts associated with conservation. This analysis identifies crucial pathways for political ecological scholarship by highlighting the need for renewed critical attention to the processes that endanger nonhuman life and thereby sustain justifications for conservation.

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The paper builds on recent geographical scholarship that urges for the closer integration of political ecology and more-than-human geographies (Srinivasan and Kasturirangan 2016; Margulies and Karanth 2018), and is structured as follows. We first offer an overview of key themes in the political ecology of conservation and human-wildlife conflict and outline a growing body of work in more-than-human geographies that investigates similar issues. We then present an analysis of human-elephant conflict in Sri Lanka, drawing on field research near Yala National Park in Hambantota district to explore issues that have been emphasized in political ecology, including the social impacts and mitigation of conflict. We also draw on research in wildlife biology to understand the behavioural ecologies, histories, and vulnerabilities of elephants in the region, and to situate and make sense of the conditions under which situations of conflict emerge. Following this, we engage with recent scholarship in more-than-human geographies and develop an alternative reading of these materials in order to expand the analysis and understanding of human-wildlife conflict and conservation in Sri Lanka and beyond. Overall, we deploy this more-than-human political ecology of human-elephant conflict to strengthen conceptions of social natures that are embedded in the appellation of fortress conservation, outlining an expanded scope for critical scholarship on conservation.

2. Wildlife and people; conflict and conservation

There is a vast literature in human geography that has closely tracked the contours of efforts to protect 'wild' natures across the world. Spanning a variety of regions across the planet, such work has extensively studied the interface between conservation and local human communities, especially the social impacts of conservation measures in the Global South. Wildlife conservation as a domain of discourse and practice emerged in the colonial period in the form of the preservation movement that was concerned with protecting 'wild' animals for reasons connected to aesthetics, recreation (hunting, tourism), and at times, for their intrinsic value. This usually took the form of safeguarding valued landscapes and their wildlife from various human activities, except for certain pre-sanctioned ones such as tourism or recreational hunting (Adams 2004). The use of protected areas as a conservation tool spread across the globe in the 19th and 20th centuries along with the spread of colonialism and then the development project (Adams 2004; Li 2007). In time, this led to the criticism of conservation for its serious social impacts: the displacement, involuntary relocation, and significant social disruption that often accompany the establishment of protected areas (Agrawal and Redford 2009).

The field of political ecology has devoted much attention to these issues. A key contribution has been the critical theorization of conservation interventions such as protected areas as 'fortress conservation'. As Brockington (2015, 2) explains, "fortress conservation is a practice of exclusion...It is about restricting access to nature in order that nature be protected... [It] is also an ideal. Behind it lies the concept that nature and people should be separated, either because people...are too dangerous to be allowed to be part of the landscape, and/or because the idealized perfect landscape is simply conceived to be 'wilderness', a place without people." The extensive scholarship on fortress conservation has investigated the ties between (neo)colonialism, capitalism, and conservation, and challenged conservation practice based on essentialist conceptions of nature that promote the idea of 'people-free wilderness' (Robbins 2012; Brockington and Igoe 2006; Neumann 2004). More recently, political ecologists and other conservation geographers have

de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004> extensively studied the growing links between markets, securitization, new media and conservation to show how conservation-induced displacement is underpinned by evolving rationalities (Holmes and Cavanagh 2016; Duffy 2016; Buscher 2016).

While these analyses are varied in their empirical foci and theoretical approaches, they share a common interest in studying the negative social impacts of conservation and its ties with neoliberalism and neocolonialism, and tend to be informed by non-dualist understandings of nature and society (Hinchliffe 2007; Menon and Karthik 2017). At the most fundamental level, this body of work contests dualist ideas of 'nature-as-separate-from-society' that underlie fortress conservation, thereby arguing against conservation practice that protects wildlife by preventing or reducing human access to and use of the same (such as through protected areas). In this view, wildlife and people have always cohabited landscapes (and such cohabitation has often included conflict). As such, protected areas and similar measures that demarcate separate areas for nonhuman nature are not only problematic for their social impacts, but also fundamentally flawed in their conceptual underpinnings. Over time, the field of conservation practice has evolved to acknowledge that "conservation goals should be integrated with the development objective of meeting human needs" (Adams 2004, 121). Nevertheless, as Buscher (2016, 115) argues, despite decades of critical scholarship, "fortress thinking persists in the governance of protected areas", and is buttressed by evolving social artefacts, whether the new media or the militarization of wildlife protection.

An important strand of political ecological scholarship on conservation examines human-wildlife conflict (HWC) in and near protected areas, theorizing such conflict as a correlate of fortress conservation (Nyhus 2016). Policy and academic concern about HWC stems from both the seriousness of impacts on people, as well as on the effectiveness and sustainability of conservation efforts. HWC poses challenges to conservation because of its social impacts and also because it leads to loss of local support for conservation, and even retaliatory actions against and hostility towards wildlife (Karanth et al. 2013; Santiapillai et al. 2010). While HWC can refer to situations where wild animals affect people adversely as well as situations where people harm wild animals (Madden 2004), political ecology has concentrated scrutiny on the former (Margulies and Bersaglio 2018).

The direct material and socio-economic losses, including the loss of human life, caused by HWC has been explored in a variety of contexts (McGregor 2005; Jampei 2016). Equally, the need to examine the hidden costs of HWC – such as impacts on physical and mental wellbeing, costs that unfold over time or that remain uncompensated, opportunity costs of guarding, transaction costs of claiming compensation, and the long-term impacts of resettlement – has been highlighted (Ogra 2008; Barua, Bhagwat, and Jadhav 2013; Witter and Satterfield 2014). In general, HWC is seen as an outcome of neocolonial conservation in which socio-economically marginal communities disproportionately bear the costs of wildlife protection and any improvements in wildlife population numbers (Mackenzie and Ahabyona 2012). Indeed, to Massé (2016, 102), the social displacement caused by HWC along with the measures used to mitigate such conflict align with and strengthen conservationist "efforts to produce spaces of wilderness".

Human-wildlife conflict has also been theorized in literatures in more-than-human geographies (Collard 2012; Boonman-Berson, Turnhout, and Carolan 2016; Ojalammi and Blomley 2015; Fraser-Celin et al. 2017). Broadly speaking, this line of scholarship deploys a cosmopolitical lens to human-wildlife conflict, exploring how people and (risky) wildlife

de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004> share habitats, and emphasizing nonhuman creatures as subject-objects of concern and analysis. Key themes include the role of nonhuman agencies in human-wildlife conflict and cohabitation (Lorimer 2010), the shifting places of wildlife in human imaginations and spatialities (Bolla and Hovorka 2012; Whatmore and Thorne 1998), the value of engaging with indigenous knowledges and ontologies (Todd 2014), the fraught intersections between 'animal spaces' designated by society and 'beastly places' inhabited by the animals themselves (Urbanik 2012), the more-than-human co-production of landscapes, and the importance of attending to the specificities of human-animal encounters on the ground (Dempsey 2010; Collard 2012). These literatures argue for closer consideration of the histories and vulnerabilities of the animals that are the subjects of conservation, and that become entangled in situations of conflict with people and societal artefacts. As Evans and Adams (2018, 11) write about African elephants, "understanding their needs and interests as a species and as individuals provides the best hope for future cohabitation in shared landscapes."

Such work has for the most part run parallel to mainstream political ecological research into HWC. Political ecological studies still tend to "focus on those [human] individuals and communities harmed by conservation's practice as their central research subjects and much less on the kinds of non-human lives central to these entanglements" (Margulies and Karanth 2018). With some notable exceptions (e.g., Collard 2012; Sundberg 2011; Bolla and Hovorka 2012), the multiscalar analyses that are the hallmark of political ecology have been primarily committed to studying those processes and conditions that adversely affect people, i.e., to matters of social justice (Margulies and Bersaglio 2018).

These silos have led to recent calls for and efforts to integrate more-than-human sensibilities, i.e., attention to the histories, needs and vulnerabilities of animals and other nonhuman life-forms, more firmly in political ecology (Srinivasan and Kasturirangan 2016; Sundberg 2011; Margulies and Karanth 2018). This paper responds to these calls and develops a more-than-human political ecology of people-elephant conflict in Sri Lanka to draw out implications for the theorization of social natures and fortress conservation in the contemporary world. Drawing on fieldwork in Viharamahadevipura village (Hambantota district) which is located adjacent to Yala National Park (YNP), the paper examines the character, impacts, and drivers of conflict in this region, and examines mitigation interventions in place.

Carried out in the year 2014, fieldwork was initiated with a set of 40 pilot interviews with local people from a range of occupational groups in Hambantota district, along the south-western side of YNP, at varying distances of up to approximately 11 kilometers from the park, at which point no human-elephant conflict was reported in multiple interviews. Following this, further research was concentrated on Viharamadevipura village because of its proximity to YNP and extensive agricultural holdings and dense residential settlements. This involved semi-structured interviews with village residents (68 in total; approximately 10% of Viharamahadevipura's 683 households), and in-depth interviews with local and regional/national key actors (conservationists, NGO representatives, park wardens). Socio-economic status can affect individual experiences and attitudes of HWC and as such is an important aspect in the study of such conflict (Inskip and Zimmerman 2009). Due to cultural sensitivity (Ogra 2008), annual income was not directly discussed in this study; a wealth index was used to assess socio-economic status. Analysis involved the deployment of qualitative coding techniques on the interview data, combined with the use of simple descriptive statistics to draw out some key trends (Charmaz 2005; Kitchin and Tate 2000).

The aim of the field research was to develop an understanding of everyday experiences and perceptions of human-elephant conflict, including measures undertaken to address such conflict, in relation to aspects such as socio-economic profile, location of holdings, and land-use changes. These analyses were triangulated with research on the behavioural ecologies of elephants in the region to develop an expanded, more-than-human political ecological account of human-elephant conflict and coexistence. This serves as the basis for thinking through common deployments of non-dualist conceptions of nature and society (Mansfield and Doyle 2017), with a specific emphasis on strengthening political ecological analyses of fortress conservation.

3. People-elephant interactions in Sri Lanka

Sri Lanka is an island nation that holds around 10% of the global Asian elephant population in around 2 % of the global range of this animal (Fernando et al. 2011). The Asian elephant, *Elephas maximus*, is classified as endangered in the IUCN Red List because of an estimated 50% population decline over the last three generations and their rapidly shrinking habitat range (IUCN SSC Asian Elephant Specialist Group 2008). Taxonomically, the Asian elephant is classified into three surviving subspecies, of which one is the Sri Lankan elephant, *Elephas maximus maximus*².

Elephant population estimates in Sri Lanka are at best “educated guesses”, and were put at around 5879 in the year 2011 (Fernando et al. 2011, 94). Historically, these animals inhabited the entire Sri Lankan island, but are now found mainly in the dry zones of the country, both within protected areas such as national parks, and outside (as most of the protected areas are too small to accommodate the animals’ home-ranges). Elephants in Sri Lanka have attracted much interest as objects of conservationist concern (Lorimer 2010). These charismatic animals are not only endangered, but are also flagship species that gather public and policy concern as well as the resources required for conservationist action, raising questions about the neocolonial forms of conservation that they often become entangled in (Barua 2014; Jazeel 2005). Elephant conservation in Sri Lanka becomes particularly contentious in situations of conflict. The behavioural ecologies and spatial ranges of these animals are such that their habitats and movements often extend beyond the boundaries of protected areas (PAs) and overlap with human habitats, leading to situations of serious conflict (Fernando et al. 2008; Locke 2016).

Human-elephant conflict (HEC) in Sri Lanka (like in other places including the African continent), commonly manifests as crop depredation, property damage, and direct attacks on people resulting in injury and death (Fernando et al. 2011; cf. Evans and Adams 2018; Witter 2013). This often goes along with retaliatory attacks on elephants and an undermining of conservation efforts (Perera 2009). It is estimated that around 50 – 60 people and 225 elephants are killed annually because of HEC in Sri Lanka (Jayewardene 2014). A variety of mitigation measures has been developed to address human-elephant conflict in the country. Mitigation strategies are deployed by either state authorities or

² The African elephant is classified as a different species and is listed as Vulnerable in the IUCN Red List. African elephant conservation includes game hunting, ranching and routine population management through culling, strategies that are not deployed in the case of the Sri Lankan elephant. The reasons for these differences are beyond the remit of this paper.

de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004> privately (individuals or communities), and as such operate at different scales, and are underpinned by varying motivations. As the below table shows, these strategies have enjoyed only limited success.

Table 1: HEC mitigation strategies	
Strategy	Challenges
Electrified fence around PA	<ul style="list-style-type: none"> • Only effective if appropriately located and maintained; as per Fernando <i>et al.</i> (2005, 2478), 'elephant barriers' should be along ecological boundaries, which includes elephant corridors.
Elephant translocation: problem elephants darted and captured; transported to new location, often PAs	<ul style="list-style-type: none"> • Elephants may stay in PA for only 24 hours; most stay for few months defeating HEC mitigation; higher death rates than local elephants populations (Fernando et al. 2012). • Elephants spatial habits do not change; problems continue (Perera 2009) • High costs of translocation per elephant – approximately 1441.82 Euro (Fernando and Leimgruber 2011).
Elephant drives: People and vehicles herd elephants into PAs	<ul style="list-style-type: none"> • Low success rate in eliminating elephants totally, as some break away from the herd and others retaliate, losing fear of humans (Perera 2009). • Young elephants restricted to PAs often starve (Jayawardene 2014)
Private electrified fence around cultivated land or property	<ul style="list-style-type: none"> • Not stand-alone measure, requires guarding too (Gunaratne and Premarathne 2006).

Community electrified fence: Several stakeholders invest in communal electric fence around multiple plots of land or entire village, in which case NGO or state	<ul style="list-style-type: none"> • Having more people investing in fencing should make effective management achievable; there are problems organising systems for this (Chaudhuri 2013).
Night guarding and repulsion methods: Watching over crops; involves 'active deterrents' when elephants arrive, e.g. firecrackers and use of guard dogs	<ul style="list-style-type: none"> • Active deterrents can panic elephants and result in more damage (Fernando and Leimgruber 2011). • Translocated elephants show little fear of such methods (Perera 2009).

Despite the variations in scale, technology, and ownership, what is common to these mitigation strategies is that they attempt to maintain a separation between elephants and people, between nature and society, the wild and the domestic as has been noted in other situations of human-wildlife conflict (Boonman-Berson, Turnhout, and Carolan 2016; Fischer and Chhatre 2013; Bolla and Hovorka 2012). Indeed, they are often largely based on the *restriction* of elephants to protected areas (Fernando and Leimgruber 2011). The inadequacy of such strategies has led to calls from conservation practitioners for approaches that move beyond strategies of physical restriction and that protect elephants across the large spatial ranges that they require (Ekanayaka et al. 2011; Rangarajan, Madhusudhan, and Shahabuddin 2014; Fernando et al. 2006).

The sections that follow offer a close examination of the contours and impacts of HEC in Sri Lanka, drawing on fieldwork in the village of Viharamadevipura and on research on elephant vulnerabilities and behavioural ecologies in the region.

3.1. The social impacts of human-elephant conflict

Figure 1; Figure 2

Yala National Park covers approximately 1000 square kilometres of land and is home to a significant elephant population, the size of which varies seasonally (Fernando et al. 2011). In offering protections to wildlife, including elephants, by restricting human access to and use of the landscape, YNP is a protected area that has been understood as an example of fortress conservation (Jazeel 2005). Viharamahadevipura village in Hambantota district is located adjacent to YNP. Interviews with local people indicated that encounters between villagers and elephants are common in the area and often result in the material and other impacts described in literatures on human-wildlife conflict (Nyhus 2016). Crop depredation is the most prevalent impact of HEC in the area with long beans, watermelon and paddy being the most commonly targeted crops. The resultant economic losses are serious: 54% of the farmers interviewed reported losses of above 16% of total annual income the previous year (that could be attributed to elephants); one farmer had lost the entire crop (Interviews, villagers, 2014).

Almost all the study households (92%) reported having had negative encounters with elephants, and more than half reported regular direct conflict of moderate intensity (low intensity refers to conflict less than twice a week, moderate intensity to conflict 2 to 4 times a week, and high intensity to conflict more than 4 times a week). The highest intensities of conflict were reported in areas closest to YNP (cf. Karanth et al. 2013), but

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economic losses are not always directly linked to intensity. It is well-established that personal wealth and/or access to capital is an influential determinant of losses linked to HEC as it determines the capacity to afford mitigation measures such as electric fencing (Ntumi 2012; Dickman 2010). In Viharamahadevipura, lower economic losses (relative to overall income) were experienced by villagers who reported high conflict intensity but scored high on the wealth index. This is because they were able to afford “electric fencing and [a] bright light” to deter elephants (Interview, villager, 2014). Only 18% of those interviewed had electric fencing in Viharamahadevipura. As several interviewees explained, the cost of erecting an electric fence around a 2.5 acre plot can be more than the profits that can be generated from a similar sized plot of land “in a good year [without significant HEC]” (Interviews, villagers, 2014).

While the losses associated with crop depredation are the most visible impacts of HEC in the area, the costs of efforts by individuals to prevent such losses are an example of hidden impacts (e.g., the recurring costs of labour required to deter crop depredation) (Ogra 2008). Night watches to protect crops and property are undertaken by many villagers. This often involves the entire family who take turns to keep watch over fields at night-time, staying in a hut or a tree-house near the fields, usually for around 6 months every year (Interviews, villagers, 2014). This in turn negatively affects every household member, including children, because of increased workload, disruption to family routines, and greater exposure to elephant attacks. Impacts on bodily and mental health also tend to remain hidden. As a shopkeeper explained, an elephant attack while he was riding his motorbike had multiple impacts: a broken leg, medical costs, lack of mobility, and knock-on socio-economic effects because he was unable to run the shop for a few weeks. The multiplier effects of HEC are equally evident in the experiences of a woman widowed after an elephant killed her husband whilst guarding the field: “I must look after my children, even if it’s hard; I only sow on one field, the other is left [fallow]” (Interview, villager, 2014). Negative encounters with elephants can thus have multivalent impacts that prevail long after the encounter. These are all issues that have been identified in other situations of human-elephant conflict (Barua, Bhagwat, and Jadhav 2013; Naughton-Treves and Naughton-Treves 2005; Witter 2013).

3.2. The socio-ecological conditions of HEC

Focusing on the consequences of human-elephant conflicts offers a sense of their multilayered social impacts. However, it does not say much about the conditions – social and ecological - that lead to such negative interactions in the first place. Research on the behavioural ecologies and vulnerabilities of the elephants shows that at the most basic level, HEC varies with season (Ekanayaka et al. 2011; Gubbi 2012). The dry season in Hambantota (when water is scarce) extends from approximately May to October, and one would expect higher conflict intensity in this period as elephants move in search of water. Counterintuitively, conflict intensity is relatively low in this period. This is because fewer fields are cultivated in the dry season (Interviews, villagers, 2014). Traditionally, the main agricultural season is during monsoonal rains from November to January (Ekanayaka et al. 2011). As crops mature from January to April, they attract elephants; this is also a period when resources in the park are relatively scarce; HEC therefore peaks in this season. As one farmer put it, the “smell attracts elephants...they just sense that they are (sic) maturing and always keep coming to eat.” (Interview, villager, 2014)

In recent years, these seasonal variations have interacted with political-economic

de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004> changes, in particular, changes in land-use patterns, to affect the intensity of HEC in the area. As Margulies and Karanth (2018) show in their study of Bandipur National Park in India, changes in the cattle economy of the region directly affects and increases the social impacts of human-wildlife conflict. It is not just fortress conservation that leads to HWC, but also broader political-economic changes in the landscape. In Sri Lanka, escalating human demand for land for agricultural, residential, and other commercial purposes has resulted in the steady reduction and fragmentation of elephant habitat across the country (Santiapillai et al. 2010). In Hambantota, water irrigation schemes have enabled cultivation several times a year, including during the height of the dry season. The intensification of agriculture and the associated cultivation of lands traditionally left fallow during the dry season restricts the spaces that elephants could previously forage in freely, and thereby exacerbates conflict (Fernando et al. 2005; Dickman 2010; Naughton-Treves and Naughton-Treves 2005). Indeed, research suggests that HEC intensity is *less* in YNP than in the Kahalle region in Sri Lanka precisely because of more intensive cultivation in Kahalle (Fernando et al. 2005). However, agricultural practices near YNP have also been intensifying, thus adversely affecting the spatial and temporal partitioning of resources that was enabled by traditional agricultural methods. It is important to note here that these changes cannot be attributed to the farmers who inhabit this region, but to the broader market and political forces (including legal and economic conditions that encourage and enforce very specific agricultural practices) at regional, national and global scales that shape how landscapes are used in specific locations.

Elephant movements and activities also intersect with the socio-economic activity of livestock farming: the impacts of HEC in Viharamahadevipura are compounded by interspecies cooperation between domestic cattle and elephants. As one villager explained, once elephants break into cultivated land “herds of cattle follow their route...there can be around 100 to 200 cattle following (sic)” (Interview, 2014). Domestic cattle in the region are allowed to roam and graze freely, but usually lack the physical strength to break fences around agricultural lands. They instead rely upon elephants to create gaps in the fences: cattle in the area have learnt to socially graze with elephants (Roberts 1997; Plotnik et al. 2011). This interaction between elephants and cattle dramatically exacerbates economic losses, and the chances that a harvest will be completely lost. As one paddy farmer put it, “it’s cattle that are my problem, really” (Interview, villager, 2014). However, cattle are a valuable source of income, and as such, are not perceived in the same terms as elephants are when it comes to impacts on crop harvests, i.e., as animals that are out of place (Philo and Wilbert 2000). Cattle therefore tend to remain below the radar of public debate and action on human-elephant conflict.

3.3. Managing human-elephant conflict

Over the years, a range of state-led as well as private efforts to prevent HEC have unfolded in the region. Like in rest of the country (see Table 1), state-led initiatives have mainly involved proposals for electric fencing around the national park, elephant drives, and elephant translocation programmes in addition to compensation and land-use planning (Perera 2009). All of these initiatives rest on the idea that elephants belong within the YNP (and other protected areas) and not *outside* these areas.

The existing electric fence around the YNP (built in 2002) has been ineffective in restricting elephants to the park because of inadequate maintenance. Both conservationists and villagers expressed dismay at a proposal to build another fence

de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004> further out from the existing one. While villagers were mainly concerned about their potential displacement (Interviews, villagers, 2014), local conservationists (Interviews, conservationists, 2014) opposed the fence for both ecological (as it does not take into account elephant landscape use and results in habitat fragmentation) and social reasons (displacement of people) (also see Fernando et al. 2008; Madden 2004; Ntumi 2012; Santiapillai et al. 2010).

The park fence functions in tandem with elephant drives. Elephants that enter areas that are deemed to be for human use are driven back into YNP (Perera 2009). There is a lot of local support for elephant drives as it was seen as a way of removing troublesome elephants without “causing any pain or [lasting] harassment” (Interview, villager, 2014). Villagers also participate in elephant drives. Nonetheless, these drives are not very effective in reducing HEC because of the poorly maintained fence at YNP. As a villager explained, “we come together to shoo them, it doesn’t take long before they are back...the fence is far too broken” (Interview, villager, 2014). Elephant drives can also be dangerous for elephants themselves causing injury, trauma, and even death (Fernando 2015).

Elephant *translocation* is, on the other hand, opposed by both conservationists and local people (Interviews, 2014; also see section 3.4). Translocation involves the capture and relocation of ‘problem’ elephants, typically to a protected area. This is seen as a reactive measure undertaken by the state that creates more problems than it addresses (Fernando et al. 2012). The ranging habits of elephants do not change just because they are relocated (Perera 2009), and it is observed that most elephants stay in the new area from between 24 hours to a few months (Fernando et al. 2012). Farmers recognize this too. As a local farmer put it, “transported (sic) elephants are the biggest problem. These elephants were bothersome before, it still happens here. Elephants are territorial, so new [translocated elephants] are pushed out, towards where we live, where we farm also...it’s not herd territory” (Interview, villager, 2014). The costs of translocation are also significant – approximately 1441.82 Euro /elephant (Fernando and Leimgruber 2011) – and translocated elephants are at greater risk of mortality than elephants in their home ranges (Fernando et al. 2012).

Private measures include electric fencing around homes and fields. These are effective in deterring elephants to varying degrees; while most farmers who had such fences found them effective in deterring elephants (and also cattle and wild boar), some reported otherwise, saying that elephants were constantly “trampling it to the ground” (Interviews, 2014). Regular maintenance is necessary as elephants learn to return to breaks in fences and overcome other barriers such as trenches (cf. Harich et al. 2013). Furthermore, as discussed earlier, private electric fencing is contingent on individual wealth and access to capital, and as such available only to a few. In recognition of these problems, conservationists in the region recommend community electric fencing (Interviews, 2014). However, such fencing does not address the issue of the spatial needs and ranging behaviours of elephants, especially when the lands under human occupation are extensive, like in Viharamahadevipura, and overlap with elephant spatialities.

Night guarding with active repulsion is the most commonly practiced private mitigation strategy. Nearly all farmers in the area employ this strategy. However, while it has relatively low direct economic costs, the hidden costs can be significant because of the long-term health and labour consequences of lost sleep. It is also not always effective, especially with translocated elephants that do not seem to fear people “and the noise we

de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004> make” (Interview, villager, 2014). Local farmers are also keenly aware of elephant ability to learn. They explain that elephants are quick to become familiar with deterrence strategies. As one farmer elaborated: “elephants began to stick their foot out to trample the [fence] post taking down a whole section of the [electric] fence” (Interview, villager 2014). This farmer emphasized the importance of being able to adapt to elephant learning.

3.4. Beyond deterrence: indigeneity

The first and predominant response to negative encounters with elephants is deterrence/prevention through the various strategies discussed above. However, nearly half the farmers (45%) interviewed who experience high conflict intensities eventually respond by abandoning their fields. For some, this is a regular response every year since it is “simply impossible to battle against” elephants (Interview, farmer, 2014). For others, it is contingent on fluctuating conflict intensities, with the year 2014 seeing particularly high levels of conflict because of drought across the region. As one farmer put it, “the farmer next to me departed before he could harvest the crop...elephants came in over there, trampled...” (Interview, 2014)..

While this response is underpinned by resignation and a perception of elephants as “nuisances” (Interview, villager, 2014), a general attitude of can be described as tolerance also prevails in the region. This is seen in the almost unanimous opposition (99% of interviewees) to violent retaliatory action against the elephants, as also to removal from the area. Instead, as mentioned in section 3.3, elephant drives are the preferred way of dealing with those animals that leave the park and enter human-occupied areas “because it’s [the park] where they belong” (Interview, farmer, 2014).

Indeed, despite the prevalence of significant HEC, villagers do not express overt hostility or even the desire to eradicate elephants from the region (also see Santiapillai et al. 2010). In contrast to literature on HWC which documents systematic and/or retaliatory poisoning, trapping, and killing (Mackenzie and Ahabyona 2012; Ojalammi and Blomley 2015; Boonman-Berson, Turnhout, and Carolan 2016; Nyhus 2016), in Viharamahadevipura, villagers display attitudes of tolerance towards elephants that are surprising in the face of the risks posed by these animals. The shopkeeper who was attacked while on his motorbike says that he “would never inflict pain [upon the elephants]...you know they too are living animals, to be respected” (Interview, 2014). Such tolerance for wildlife, including those animals that cause serious negative impacts has been documented in other places (Karanth et al. 2013; Kansky, Kidd, and Knight 2016; Sekar 2013).

Even elephant drives, which are largely supported, invoke uneasiness. As a farmer elaborated: “I feel uneasy chasing them off, I feel sorry for them; they’re important here – we have all grown up with elephants” (Interview, villager, 2014). Only one out of all the villagers interviewed expressed a desire for eradication: “if the troubles can’t be stopped, then kill them [elephants]” (Interview, villager, 2014). This person had generated no income from his fields for two consecutive years because of HEC. In general, however, villagers articulated the view that the elephants belong to the landscape. As one woman put it, “elephants, they deserve to be roaming here. After all, it’s their land, isn’t it? It is us [humans] causing the troubles we are faced with” (Interview, villager, 2014). The awareness that elephants have always inhabited these landscapes appears to translate into a sense of guilt about initiatives to remove or relocate them. Historically, elephants have

de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004> been present in the region as not only living creatures but also as cultural and religious symbols. Long co-histories of people and elephants in these lands arguably underpin the view that elephants belong here, that they are indigenous to the area.

4. Discussion

Viharamahadevipura displays many of the serious direct and hidden impacts associated with HWC near protected areas. In what follows, we integrate the above analyses of the social impacts of HEC with a more-than-human lens that takes into account the histories, needs, and vulnerabilities of the elephants to show that the conflict and attendant social impacts have their origins in historical and contemporary socio-material modifications in the more-than-human landscape, i.e., in changing political-economic conditions and shifting ideas and values about the 'place' of wildlife in these landscapes and in human society. In making these arguments, we revisit the critique of nature-society dualisms that is foundational to the appellation of fortress conservation and call for expanded conceptions of the idea of social natures.

4.1. A more-than-human political ecology of HEC

What might the explicit integration and foregrounding of more-than-human sensibilities offer to the political ecology of HEC in Viharamadevipura? A clue lies in the complex attitudes displayed by the people of Viharamadevipura. As discussed above, almost all villagers are affected adversely by HEC in the area, and want the elephants to stay out of human settlements. They hence support and participate in elephant drives to get these animals back into YNP. The desire for spatial separation between people and elephants - to reinforce the nature-society divide - however, is accompanied by a sense of guilt that stems from the view that these spaces rightfully belong to elephants, that elephants are 'indigenous' inhabitants, with the result that almost no one supports eradication or even translocation. This in turn directs attention to the histories of the elephants that inhabit this region, and the manners in which elephant and social histories intersect. It calls for a more-than-human political ecology, one which tracks how political-economic and social, material and non-material, changes over time have impacted not only the human inhabitants of the region, but also the animals, and influenced how people and animals interact (Dempsey 2010).

In Viharamadevipura, research into the behavioural ecologies of elephants shows that changes in irrigation facilities and cropping patterns, along with an expansion of agricultural cover over time and space has resulted in the intensification of negative human-elephant encounters in the area because of habitat loss and fragmentation (Perera 2009; Fernando and Leimgruber 2011). As conservationists working in the region note (Fernando et al. 2005), the spatial and temporal partitioning of resources enabled by traditional forms of agriculture such as chena (shifting agriculture) are far more conducive to human-elephant coexistence than the forms socio-economically and legally favoured in current times: perennial, settled, intensive agriculture.

Such changes are not peculiar to the region near Yala National Park. Historically, elephants ranged all over the country. In today's Sri Lanka, however, these animals are restricted mainly to the dry areas of the island, and are almost entirely absent from the wet zones, with the exception of small populations in two protected areas (IUCN SSC Asian Elephant Specialist Group 2008). Any rises in elephant numbers brought about by

de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004> conservation in Sri Lanka are thus improvements from a state of depletion, as opposed to being actual growth in their populations over history. On the contrary, elephant habitat continues to shrink in the country (and in Asia more broadly) because of development-related activities, with the concomitant weakening of elephant populations, leading to their continued classification as an endangered species. The material conditions that once enabled elephants to cohabit with people and thrive across Sri Lanka have changed - as they have in other parts of the world (see Margulies and Karanth 2018).

As such, contemporary manifestations of human-elephant conflict in the country need to be understood in relation to political-economic shifts in the human use of the landscape over time. These changes have steadily restricted the use of landscapes by elephants and led to serious decline in their numbers, with such decline in turn spurring conservation action in circumscribed protected areas that are inadequate for elephant ecologies. Conflict between people and elephants in today's Sri Lanka is thus not just the outcome of conservation, but equally or even more because of profound material changes in the way in which landscapes and habitats are used for human activities, in particular, for the development project.

Furthermore, the changing valences of HWC, i.e., how people and societies perceive, understand and respond to the impacts of negative interactions with other animals, also need to be taken into account (Bolla and Hovorka 2012; Urbanik 2012). The different responses to crop losses caused by elephants, and losses caused by cattle in Viharamadevipura are illustrative. The losses caused by elephants are valued differently to the losses caused by cattle, even if, as noted earlier, the latter might be materially more significant. Similarly, as has been observed in other contexts, losses caused by *protected* wildlife assume far more significance in public debates than the more substantial losses caused by other kinds of wildlife, such as rodents (Naughton-Treves and Naughton-Treves 2005; Peterson et al. 2010). These differences cannot be explained solely with reference to variations in perception of voluntary and involuntary risks or variations in the instrumental value of the loss-causing animal alone (Slovic 2000): while cattle have instrumental value, rodents don't.

One major point of difference between elephants and other risk-posing animals such as cattle or rodents is this: elephants are viewed as belonging to and being under the protection of the state (and the conservation sector) (Interviews, villagers, 2014). This renders the risks posed by these animals unacceptable, or at least, delegates these risks as ones that need to be addressed by the state or the conservation sector (Naughton-Treves and Naughton-Treves 2005; Evans and Adams 2018; Bolla and Hovorka 2012). Another point of difference lies in the changes over time in attitudes towards and practices of cohabitation. A long view of history shows that human-wildlife conflict is not a new phenomenon (Nyhus 2016). What has changed is something else.

In Sri Lanka, local art, architecture, folklore and literature bear testament to long histories of conflict and coexistence between people and elephants (Fernando et al. 2011; Santiapillai et al. 2010). Across the world, cohabitation has always gone with conflict whether between human groups or between people and wildlife (Dempsey 2010). The spread of colonialism, however, and then, 'development', brought about falls in levels of conflict (and coexistence) because of habitat degradation and the associated displacement and dying out of wildlife (Adams 2004; Naughton-Treves and Naughton-Treves 2005). When (risky) animals are displaced or eradicated from the landscape, memories and

This has multiple ramifications. In some cases, such as in Sariska tiger reserve in India (Doubleday 2018) or wolves and bears in Europe (Buller 2008; Jones 2018), it can mean that animals that had been exterminated are reappearing thanks to conservation interventions *only to be re-eradicated* as problem animals in changed socio-ecologies where traditions and memories of conflict and coexistence have been lost. In other cases, such as in Viharamadevipura, where protected areas act as inadequate habitats in landscapes transformed by human activity, animals cross the spatial boundaries set for them and are persecuted for being out-of-place. Here too, nondualist traditions of conflict and coexistence have been displaced by dualist customs of separation and protection.

In Viharamahadevipura, dualist responses to conflict take the form of elephant drives, translocation, and electric fences, all of which are measures that are based on the idea that elephants do not belong in human settlements. In other areas, animal transgressions of human constructs of their rightful place can lead to their elimination as ‘problem’ individuals, or even a general licence to eliminate any member of a ‘problem’ population (Boonman-Berson, Turnhout, and Carolan 2016; Nyhus 2016; Massé 2016). Even where existing legal frameworks prohibit the killing of valued wildlife, problem animals are often rendered killable through the creation of exceptions (Choudhary 2016; cf. Biermann and Mansfield 2014).

People and wildlife have always killed and been killed by each other. But as Dempsey (2010) points out, the killing of wildlife in contemporary times is fundamentally different to the killing practiced in the societies of the past (and some indigenous societies today). For one, ‘wild’ animals (and other nonhuman life) in the contemporary world have been rendered extremely vulnerable by various economic and developmental activities. Secondly, in the past, killing (of wildlife) was usually restricted to moments of need or dangerous encounter. In today’s world, killing takes place in the face of potential risk, to create (bio)secure human spaces which are free of threats posed by wild animals: “what matters about the bear here is that it can kill humans, an insecurity resolved by simple eradication” (Dempsey 2010, 1144). In other words, ideas about where wild animals belong and what levels of risk posed by nature are acceptable have changed. As such, while geographers have shown interest in ‘rematerialising’ analysis (Whatmore 2006), the analyses here emphasize the value of renewed scrutiny of aspects *beyond the material* to take into account changing attitudes and values and their co-constitution with material and political-economic changes.

Bringing more-than-human sensibilities to political ecological analysis highlights that the socio-material conditions that frame human-wildlife cohabitation and conservation in today’s world are often fundamentally different to those conditions that predate colonialism and associated political-economic processes, including one of their offshoots, the social domain of conservation. This indicates the need to move beyond critiques of human-wildlife conflict as a manifestation of problematic fortress conservation that is founded on nature-society dualisms, and to more fully explore the evolving social and more-than-human ramifications of social natures.

4.2. Revisiting social natures

In describing protected areas and other such conservation measures as fortress

de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004> conservation, political ecologists and other social scientists interrogate the dualist idea of human-free wilderness that underpins many efforts to protect wildlife (Brockington 2002; Buscher 2016). They point out that the nature-society dualism is a social construct, and that people have always lived alongside (and sometimes killed) nonhuman life. In making these arguments, they call for conservation that is people-centered, and that does not rely on de-peopled 'wild' spaces (Adams 2004).

As is seen in Viharamahadevipura and other areas with HWC, living alongside wildlife - whether within protected areas or outside - poses risks. Coexistence goes along with conflict (Evans and Adams 2018). While this has always been the case, the social and material conditions that frame human-wildlife cohabitation have changed over time.

The more-than-human political ecological analysis above reveals how changes in material conditions influence human-wildlife interactions and exacerbate conflict. In Viharamahadevipura, these include biophysical changes in landscapes brought around by a range of political-economic processes, including colonialism, the development project and market forces (Perera 2009; Fernando and Leimgruber 2011; Fernando 2005). Furthermore, the consideration of the histories of 'wild' animals shows that any conservation-induced rise in their population needs to be understood in relation to the state of depletion and vulnerability that *preceded* it, and to the conditions of more-than-human coexistence that *preceded* endangerment or eradication (Dempsey 2010). Elephants once inhabited the entire Sri Lankan island. Now they are found only in limited parts of the country which haven't been taken over completely for use by (privileged) human society, and are extremely vulnerable as individuals and endangered as a species.

Second, as discussed in the previous section, the valence of conflict has changed over time. Threats to human life, property, and psychosocial wellbeing posed by wildlife have become unacceptable in contemporary society; a 'good' human life has come to mean insulation from the risks that are associated with living with and as part of nature (Srinivasan and Kasturirangan 2016). While nature and society never have been separate, many sections of contemporary human society find more-than-human coexistence with all its ramifications, positive and negative, problematic.

This is evidenced in the extensive scholarship on the social impacts of HWC (Nyhus 2016) and also in the predominant response to negative human-wildlife encounters: a reinforcing of the nature-society divide which belies the vision of social natures. This takes place in two ways. One is through the removal of people from protected areas in the name of protecting them from wildlife, and is the subject of much political ecological critique (Massé 2016; Witter 2013). The other is through the re-creation of wildlife-free spaces by keeping wildlife *out* of human settlements through fences, drives, translocation and killing. This is the case in not only 'wilderness' landscapes, but also domestic, as is exemplified by concerns about free-living urban animals such as dogs, monkeys, and fleas (Yeo and Neo 2010; Biehler 2013) and biosecurity risks in contemporary agriculture (Hinchliffe and Bingham 2008). Even if the idea and practice of human-free wilderness is rejected in theory, on the ground, there continues to be reluctance to reject the idea and practice of wildlife-free society when faced with the risks of living alongside and as part of nature – i.e., when faced with the undesirable and risky aspects of social natures. This constitutes a partial deployment of conceptions of social natures, one that offers valuable critiques of the dualisms that underpin fortress conservation and its social impacts, but that does not fully account for needs, vulnerabilities, and agencies of wildlife and the plural ramifications

A fuller deployment of ideas of social natures in scholarship on (fortress) conservation means reaching beyond ontological non-dualism (i.e., society and nature have never been separate in ontological terms); it requires ethical non-dualism (Srinivasan 2019), i.e., less anthropocentric perspectives that prioritize both vulnerable people and wildlife. Such expanded conceptions of social natures will enable richer analyses of the processes that produce vulnerability and make conservation necessary in the first place, and a renewed acknowledgement that living as part of nature, as social natures, requires the equitable sharing of landscapes with nonhuman Others and entails mutual risk.

5. Conclusion

Wildlife conservation has always been a heavily contested domain of policy and action, and its social impacts have been the main focus of political ecology and allied fields. In times that have come to be marked by significant biodiversity loss and action to address such loss, this paper's analyses offer pathways to strengthen political ecological critiques of and approaches to conservation and human-wildlife conflict.

Political ecological scholarship has invested much attention on how conservation intersects with colonialism, capitalism, and markets in ways that disproportionately impact vulnerable people. These literatures show how fortress conservation is a central part of the neo-colonial and developmental logics that cause ecological destruction even while inequitably placing the onus for the protection of 'nature' onto shrinking landscapes and marginalized communities. The scholarly commitment to issues of social justice, however, tends to mark many (but not all) critiques of fortress conservation with anthropocentrism. This anthropocentrism in turn goes along with partial deployments of conceptions of social natures that do not always fully take into account the histories, needs, and vulnerabilities of nonhuman life, and the changed socio-material conditions in which human-wildlife coexistence and conflict unfold in today's world.

This in turn deflects scrutiny from the underlying drivers of conservation, those conditions that have depleted, and at times eradicated, the other beings that inhabit the planet, and that continue to steadily diminish life-opportunities for vulnerable human *and* nonhuman life (Bar-On, Philips, and Milo 2018). These conditions sustain and refresh justifications for fortress conservation, and enable its continued articulation in evolving forms despite heavy criticism of its social impacts (Buscher 2016). Even if the domain of conservation might be underlain by economic/instrumental motivations and have (neo)colonial roots, its public rationalizations are based on the existing and increasing vulnerability of wildlife in today's world (Biermann and Mansfield 2014). As such, it is vital that scholarship on fortress conservation direct its critical gaze to those conditions that render nonhuman life vulnerable in contemporary times and that produce the domain of wildlife conservation.

It is here that the value of a more-than-human political ecology comes to the fore. Taking into account animal life experiences and histories enables multi-layered analyses that provide richer explanations of the causes and conditions that underlie conservation conflicts. Integrating more-than-human sensibilities into political ecology does not require disavowing its traditional social justice concerns or ignoring the social impacts of HWC. It is well-established by theories of intersectionality that justice is not a zero-game (Hovorka

de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004> (2019). Political ecology already specializes in undertaking multidimensional and multi-scalar analyses that examine varying spatial and temporal terrains (Bassett 1988; Peluso and Watts 2001); embedding an expanded conception of vulnerability and justice can only strengthen its explanation of current troubles and the theorization of better futures.

For instance, a more-than-human political ecology might focus its analytical gaze to the processes that drive ecological ruin and make necessary conservation action. Indeed, such processes were the objects of inquiry of classic political ecology's analyses of environmental degradation (Blaikie 1985; Robbins 2012). More-than-human political ecology builds on this and highlights the histories, needs, and vulnerabilities of wildlife to reframe the domain of conservation as an outcome of the devastation of habitats and nonhuman life induced by colonialism, markets, lifestyles, and other associates of 'development', the benefits of which accrue to (human) enclaves of privilege. It emphasizes how the causes of the social impacts of conservation/HWC are rooted in inequities in how different human groups make use of most of the planet for their development goals, and therefore concentrates critical analysis on the processes that drive and serve as justifications for conservation (Peterson et al. 2010). In other words, the ultimate causes of the disruption of long histories of human-wildlife coexistence are fundamental changes in how certain privileged sections of human society used (and use) landscapes across the globe, and push marginalized people and marginalized wildlife into increasingly shrinking spaces. Fortress conservation appears later in the chain of explanation and is better understood as a more proximate cause of the social impacts associated with its practices.

These insights offer fresh pathways beyond the current impasse in political ecology wherein decades of critique have failed to eliminate the persistent "appeal" of the "fortress" (Buscher 2016, 115). They indicate that HWC-induced displacement might be better addressed by tackling the ultimate drivers of biodiversity loss and conservation action, instead of concentrating on compensation or fencing or culling or translocation or the removal of protections. They also draw attention to the changing socio-material conditions that frame human-wildlife conflict and cohabitation in today's world. In such a context, a crucial scholarly task is that of exploring what it might mean to de-insulate the lifestyles of privileged (often urban) human communities so as to reduce pressure on vulnerable animals and the marginalized (often rural) people they share habitats with.

A more-than-human political ecology that deploys a fuller, less anthropocentric vision of social natures might thus mean inquiry into what it takes to operationalize (hitherto largely theoretical) reflections on zoöpolis so as to more evenly distribute the risks of living in a more-than-human planet, as a part of social natures (Wolch 1998; Donaldson and Kymlicka 2011). It might mean going deep enough into Cronon's (1991, 81–86) essay 'The Trouble with Wilderness' to see that his criticism was "not directed at wild nature per se, or even at efforts to set aside large tracts of wild land", but to ask those in less 'wild' lands to bring the wilderness and the values associated with it "closer to home". In all, the paper thus lays the ground for creative and novel responses to conservation conundrums in political ecology, geography, and conservation social science.

References

- Adams, W M. 2004. *Against Extinction: The Story of Conservation*. London: Earthscan.
- Agrawal, A, and K Redford. 2009. 'Conservation and Displacement: An Overview'. *Conservation and Society* 7 (1): 1–10.

- de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004>
- Bar-On, Y, R Philips, and R Milo. 2018. 'The Biomass Distribution on Earth'. *Proceedings of the National Academy of Sciences* 115 (25): 6506–11.
- Barua, M. 2014. 'Bio-Geo-Graphy: Landscape, Dwelling, and the Political Ecology of Human-Elephant Relations'. *Environment and Planning D: Society and Space* 32 (5): 915–34.
- Barua, M, S A Bhagwat, and S Jadhav. 2013. 'The Hidden Dimensions of Human-Wildlife Conflict: Health Impacts, Opportunity and Transaction Costs'. *Biological Conservation* 157: 309–16.
- Bassett, T J. 1988. 'The Political Ecology of Peasant-Herder Conflicts in the Northern Ivory Coast'. *Annals of the Association of American Geographers* 78 (3): 453–72.
- Biehler, D. 2013. *Pests in the City: Flies, Bedbugs, Cockroaches, and Rats*. Seattle: University Of Washington Press.
- Biermann, C, and B Mansfield. 2014. 'Biodiversity, Purity, and Death: Conservation Biology as Biopolitics'. *Environment and Planning D: Society and Space* 32 (2): 257–73.
- Blaikie, P. 1985. *Political Economy of Soil Erosion in Developing Countries*. Longman Development Series 1. London: Longman.
- Bolla, A K, and A J Hovorka. 2012. 'Placing Wild Animals in Botswana: Engaging Geography's Transspecies Spatial Theory'. *Humanimalia* 3 (2): 57–82.
- Boonman-Berson, S, E Turnhout, and M Carolan. 2016. 'Common Sensing: Human-Black Bear Cohabitation Practices in Colorado'. *Geoforum* 74: 192–201.
- Brockington, D. 2002. *Fortress Conservation: The Preservation of the Mkomazi Game Reserve, Tanzania*. Oxford: James Currey.
- . 2015. 'The Enduring Power of Fortress Conservation in Africa'. In . Barcelona: Centre d'Estudis Africans. <http://centrestudisafricans.org/proceedings-of-the-conference-on-conservation-and-communities-in-africa/>.
- Brockington, D, and J Igoe. 2006. 'Eviction for Conservation: A Global Overview'. *Conservation and Society* 4 (3): 424–70.
- Buller, H. 2008. 'Safe from the Wolf: Biosecurity, Biodiversity, and Competing Philosophies of Nature'. *Environment and Planning A* 40: 1583–97.
- Buscher, B. 2016. 'Reassessing Fortress Conservation? New Media and the Politics of Distinction in Kruger National Park'. *Annals of the Association of American Geographers* 106 (1): 114–29.
- Charmaz, K. 2005. 'Grounded Theory in the 21st Century: Applications for Advancing Social Justice Studies'. In *The Sage Handbook of Qualitative Research*, edited by N K Denzin and Y S Lincoln, 507–35. Thousand Oaks, London, New Delhi: Sage.
- Choudhary, A. 2016. 'Supreme Court Refuses to Stay Culling of Nilgai, Wild Boar, Monkey'. *The Times of India*, 2016, 20th June edition. <https://timesofindia.indiatimes.com/india/Supreme-Court-refuses-to-stay-culling-of-nilgai-wild-boar-monkey/articleshow/52829199.cms>.
- Collard, R. 2012. 'Cougar-Human Entanglements and the Biopolitical Un/Making of Safe Space'. *Environment and Planning D: Society and Space* 30: 23–42.
- Cronon, W. 1995. 'The Trouble with Wilderness; or Getting Back to the Wrong Nature'. In *Uncommon Ground: Rethinking the Human Place in Nature*, edited by W Cronon, 69–90. New York: W W Norton & Co.
- Dempsey, J. 2010. 'Tracking Grizzly Bears in British Columbia's Environmental Politics'. *Environment and Planning A* 42: 1138–56.
- Dickman, A. 2010. 'Complexities of Conflict: The Importance of Considering Social Factors for Effectively Resolving Human-Wildlife Conflict'. *Animal Conservation* 13 (5): 458–66.
- Donaldson, S, and W Kymlicka. 2011. *Zoopolis: A Political Theory of Animal Rights*. Oxford, New York: Oxford University Press.

- de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004>
- Doubleday, K. 2018. 'Human-Tiger (Re)Negotiations: A Case Study from Sariska Tiger Reserve, India'. *Society & Animals* 26: 148–70.
- Duffy, R. 2016. 'War, by Conservation'. *Geoforum* 69: 238–48.
- Ekanayaka, S K K, A Campos-Arciez, M Rupasinghe, J Pastorini, and P Fernando. 2011. 'Patterns of Crop Raiding by Asian Elephants in a Human-Dominated Landscape in Southern Sri Lanka'. *Gajah* 34: 20–25.
- Evans, L A, and W M Adams. 2018. 'Elephants as Actors in the Political Ecology of Human-Elephant Conflict'. *Transactions of the Institute of British Geographers Online*. <https://doi.org/10.1111/tran.12242>.
- Fernando, P. 2015. 'Managing Elephants in Sri Lanka: Where We Are and Where We Need to Be'. *Ceylon Journal of Science (Biological Sciences)* 44 (1): 1–11.
- Fernando, P, J Jayewardene, T Prasad, and W Hendavitharana. 2011. 'Current Status of Asian Elephants in Sri Lanka'. *Gajah* 35: 93–103.
- Fernando, P, and P Leimgruber. 2011. 'Asian Elephants and Seasonally Dry Forests'. In *The Ecology and Conservation of Seasonally Dry Forests in Asia*, edited by W J McShea, S J Davies, N Phumpakphan, and A Pattanavibool, 151–63. Washington, D.C.: Smithsonian Institution Press.
- Fernando, P, P Leimgruber, T Prasad, and J Pastorini. 2012. 'Problem-Elephant Translocation: Translocating the Problem and the Elephant?' *PLOS One* 7: e50917.
- Fernando, P, E D Wikramanayake, H K Janaka, L K A Jayasinghe, M Gunawardena, S W Kotagama, D Weerakoon, and J Pastorini. 2008. 'Ranging Behaviour of the Asian Elephant in Sri Lanka'. *Mammalian Biology* 73: 2–13.
- Fernando, P, E D Wikramanayake, L K A Jayasinghe, M Gunawardena, and H K Janaka. 2005. 'Perceptions and Patterns of Human-Elephant Conflict in Old and New Settlements of Sri Lanka: Insights for Mitigation and Management'. *Biodiversity and Conservation* 14: 2467–81.
- Fernando, P, E Wikramanayake, D Weerakoon, and J Pastorini. 2006. 'The Future of Asian Elephant Conservation: Setting Sights beyond Protected Areas'. In *Conservation Biology in Asia*, edited by J A McNeely, T M McCarthy, A Smith, L Olsvig-Whittaker, and E Wikramanayake, 252–60. Society for Conservation Biology Asia Section.
- Fischer, H, and A Chhatre. 2013. 'Environmental Citizenship, Gender, and the Emergence of a New Conservation Politics'. *Geoforum* 50: 10–19.
- Fraser-Celin, V, A J Hovorka, M Hovorka, and G Maude. 2017. 'Farmer–African Wild Dog (*Lycaon Pictus*) Relations in the Eastern Kalahari Region of Botswana'. *Koedoe* 59 (2). a1366. <https://doi.org/10.4102/koedoe.v59i2.1366>.
- Gubbi, S. 2012. 'Patterns and Correlates of Human-Elephant Conflict around a South Indian Reserve'. *Biological Conservation* 148: 88–95.
- Gunaratne, L H P, and P K Premarathne. 2006. *Effectiveness of Electric Fencing in Sri Lanka in Mitigation of Human-Elephant Conflict: The Role of Social Aspects*. Singapore: Economy and Environment Program for Southeast Asia.
- Harich, F K, A C Treydte, J Sauerborn, and E H Owusu. 2013. 'People and Wildlife: Conflicts Arising around the Bia Conservation Area in Ghana'. *Journal for Nature Conservation* 21: 342–49.
- Hinchliffe, S. 2007. *Geographies of Nature: Societies, Environments, Ecologies*. Los Angeles, London: Sage.
- Hinchliffe, S, and N Bingham. 2008. 'Securing Life: The Emerging Practices of Biosecurity'. *Environment and Planning A* 40: 1534–51.
- Holmes, G, and C J Cavanagh. 2016. 'A Review of the Social Impacts of Neoliberal Conservation: Formations, Inequalities, Contestations'. *Geoforum* 75: 199–209.

- de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004>
- Hovorka, A J. 2015. 'Exploring Interspecies Relations through Intersectionality, Performativity and Standpoint'. *Gender, Place and Culture* 22 (1): 1019.
- Inskip, C, and A Zimmerman. 2009. 'Human-Felid Conflict: A Review of Patterns and Priorities Worldwide'. *Oryx* 43 (1): 18–34.
- IUCN SSC Asian Elephant Specialist Group. 2008. 'Elephas Maximus'. The IUCN Red List of Threatened Species 2008: E.T7140A12828813. 2008. <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T7140A12828813.en>.
- Jampe, C. 2016. 'Cattle-Based Livelihoods, Changes in the Taskscape, and Human–Bear Conflict in the Ecuadorian Andes'. *Geoforum* 69: 84–93.
- Jayewardene, J. 2014. 'Human-Elephant Conflicts'. *Sunday Island*, 2014, 11th August edition. http://www.island.lk/index.php?page_cat=article-details&page=article-details&code_title=108315.
- Jazeel, T. 2005. "'Nature", Nationhood and the Poetics of Meaning in Ruhuna (Yala) National Park, Sri Lanka'. *Cultural Geographies* 12: 199–227.
- Jones, S. 2018. 'Goat the Bear May Be Expelled from the Pyrenees over Horse Killings'. *The Guardian*, 2018. <https://www.theguardian.com/world/2018/jul/22/goat-the-bear-may-be-expelled-from-pyrenees-over-horse-killings>.
- Kansky, R, M Kidd, and A T Knight. 2016. 'A Wildlife Tolerance Model and Case Study for Understanding Human Wildlife Conflicts'. *Biological Conservation* 201: 137–45.
- Karanth, K K, L Naughton-Treves, R DeFries, and A M Gopalaswamy. 2013. 'Living with Wildlife and Mitigating Conflicts around Three Indian Protected Areas'. *Environmental Management* 52 (6): 1320–32.
- Kitchin, R, and N Tate. 2000. *Conducting Research in Human Geography: Theory, Methodology and Practice*. Harlow: Prentice Hall.
- Li, T M. 2007. *The Will to Improve: Governmentality, Development and the Practice of Politics*. Durham and London: Duke University Press.
- Locke, P. 2016. 'Conflict and Coexistence and the Challenge of Rethinking Human-Elephant Relations'. In *Conflict, Negotiation, and Coexistence: Rethinking Human-Elephant Relations in South Asia*, edited by P Locke and J Buckingham, 2–27. Oxford: Oxford Scholarship Online.
- Lorimer, J. 2010. 'Elephants as Companion Species: The Lively Biogeographies of Asian Elephant Conservation in Sri Lanka'. *Transactions of the Institute of British Geographers* 35: 491–506.
- Mackenzie, C A, and P Ahabyona. 2012. 'Elephants in the Garden: Financial and Social Costs of Crop Raiding'. *Ecological Economics* 75: 72–82.
- Madden, F. 2004. 'Preventing and Mitigating Human-Wildlife Conflict: World Parks Congress Recommendation'. *Human Dimensions of Wildlife* 9 (4): 259–60.
- Mansfield, B, and M Doyle. 2017. 'Nature: A Conversation in Three Parts. Special Forum on Intradisciplinary'. *Annals of the Association of American Geographers* 107 (1): 22–27.
- Margulies, J, and B Bersaglio. 2018. 'Furthering Post-Human Political Ecologies'. *Geoforum* Online. <https://doi.org/10.1016/j.geoforum.2018.03.017>.
- Margulies, J, and Karanth. 2018. 'The Production of Human-Wildlife Conflict: A Political Animal Geography of Encounter'. *Geoforum* Online. <https://doi.org/10.1016/j.geoforum.2018.06.011>.
- Massé, F. 2016. 'The Political Ecology of Human-Wildlife Conflict: Producing Wilderness, Insecurity, and Displacement in the Limpopo National Park'. *Conservation and Society* 14 (2): 100–111.
- McGregor, J. 2005. 'Crocodile Crimes: People versus Wildlife and the Politics of Postcolonial Conservation in Lake Kariba, Zimbabwe'. *Geoforum* 36: 353–69.

- de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004>
- Menon, A, and M Karthik. 2017. 'Beyond Human Exceptionalism: Political Ecology and the Non-Human World'. *Geoforum* 79: 90–92.
- Naughton-Treves, L, and A Naughton-Treves. 2005. 'Socio-Ecological Factors Shaping Local Support for Wildlife: Crop-Raiding by Elephants and Other Wildlife in Africa'. In *People and Wildlife: Conflict or Coexistence?*, edited by R Woodroffe, S Thirgood, and A Rabinowitz, 252–77. Cambridge: Cambridge University Press.
- Neumann, R P. 2004. 'Moral and Discursive Geographies in the War for Biodiversity in Africa'. *Political Geography* 23: 813–37.
- Ntumi, C P. 2012. 'A Landscape Approach to Elephant Conservation in Mozambique'. Pretoria: University of Pretoria (South Africa).
- Nyhus, P J. 2016. 'Human-Wildlife Conflict and Coexistence'. *Annual Review of Environment and Resources* 41: 143–71.
- Ogra, M. 2008. 'Human-Wildlife Conflict and Gender in Protected Area Borderlands: A Case Study of Costs, Perceptions, and Vulnerabilities from Uttarakhand, India'. *Geoforum* 39: 1408–22.
- Ojalamm, S, and N Blomley. 2015. 'Dancing with Wolves: Making Legal Territory in a More-than-Human World'. *Geoforum* 62: 51–60.
- Peluso, N L, and M Watts, eds. 2001. *Violent Environments*. Ithaca: Cornell University Press.
- Perera, B M A. 2009. 'The Human-Elephant Conflict: A Review of Current Status and Mitigation Methods'. *Gajah* 30: 41–52.
- Peterson, M N, J L Birkhead, K Leong, M J Peterson, and T R Peterson. 2010. 'Rearticulating the Myth of Human–Wildlife Conflict'. *Conservation Letters* 3: 74–82.
- Philo, C, and C Wilbert. 2000. 'Animal Spaces, Beastly Places: An Introduction'. In *Animal Spaces, Beastly Places: New Geographies of Human-Animal Relations*, edited by C Philo and C Wilbert, 1–34. London and New York: Routledge.
- Plotnik, J M, R Lair, W Suphachoksahakun, and F B M de Waal. 2011. 'Elephants Know When They Need a Helping Trunk in a Cooperative Task'. *Proceedings of the National Academy of Sciences* 108 (12): 5116–21.
- Rangarajan, M, M D Madhusudhan, and G Shahabuddin. 2014. *Nature without Borders*. Hyderabad: Orient Blackswan.
- Robbins, P. 2012. *Political Ecology*. 2nd ed. Chichester: Wiley-Blackwell.
- Roberts, J. 1997. 'Understanding Cow Behaviour'. *The Bovine Practitioner* 31 (2): 104–7.
- Santiapillai, C, S Wijeyamohan, G Bandara, R Athurupana, N Dissanayake, and B Read. 2010. 'An Assessment of Human-Elephant Conflict in Sri Lanka'. *Ceylon Journal of Science (Biological Sciences)* 39 (1): 21–33.
- Sekar, N. 2013. 'Tolerance for the Charismatic Marauders: Culture in Wildlife Conservation'. *Economic and Political Weekly* 48 (24): 10–13.
- Slovic, P. 2000. *Perception of Risk*. London: Earthscan.
- Srinivasan, K. 2019. 'Remaking More-than-Human Society: Thought Experiments on Street Dogs as "Nature"'. *Transactions of the Institute of British Geographers* Early View. <https://doi.org/10.1111/tran.12291>.
- Srinivasan, K, and R Kasturirangan. 2016. 'Political Ecology, Development and Human Exceptionalism'. *Geoforum* 75: 125–28.
- Sundberg, J. 2011. 'Diabolic Caminos in the Desert and Cat Fights on the Rio: A Post-Humanist Political Ecology of Boundary Enforcement in the United States-Mexico Borderlands'. *Annals of the Association of American Geographers* 101 (2): 318–36.
- Todd, Z. 2014. 'Fish Pluralities: Human-Animal Relations and Sites of Engagement in Paulatuq, Arctic Canada'. *Inuit Studies* 38 (1–2): 217–38.
- Urbanik, J. 2012. *Placing Animals: An Introduction to the Geography of Human-Animal Relations*. Lanham: Rowman & Littlefield.

- de Silva S and Srinivasan K, 2019, Revisiting social natures: People-elephant conflict and coexistence in Sri Lanka, *Geoforum*, Vol 102, pp. 182-190, <https://doi.org/10.1016/j.geoforum.2019.04.004>
- Whatmore, S. 2006. 'Materialist Returns: Practising Cultural Geography in and for a More-than-Human World'. *Cultural Geographies* 13 (4): 600–609.
- Whatmore, S, and L Thorne. 1998. 'Wild(Er)Ness: Reconfiguring the Geographies of Wildlife'. *Transactions of the Institute of British Geographers* 23: 435–54.
- Witter, R. 2013. 'Elephant-Induced Displacement and the Power of Choice: Moral Narratives about Resettlement in Mozambique's Limpopo National Park'. *Conservation and Society* 11 (4): 406–16.
- Witter, R, and T Satterfield. 2014. 'Invisible Losses and the Logics of Resettlement Compensation'. *Conservation Biology* 28 (5): 1394–1402.
- Wolch, J. 1998. 'Zoopolis'. In *Animal Geographies: Place, Politics and Identity in the Nature-Culture Borderlands*, edited by J Wolch and J Emel, 119–38. London and New York: Verso.
- Yeo, J H, and H Neo. 2010. 'Monkey Business: Human-Animal Conflicts in Urban Singapore'. *Social & Cultural Geography* 11 (7): 681–700.